

RELATIONSHIP BETWEEN THE RESOURCES OF A
COMMUNITY AND THE RESULTING COMMUNITY PATTERN

by

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B. S., Kansas State College
of Agriculture and Applied Science, 1940

A THESIS

submitted in partial fulfillment of the

requirements for the degree of

MASTER OF SCIENCE

Department of Economics and Sociology

KANSAS STATE COLLEGE
OF AGRICULTURE AND APPLIED SCIENCE

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INTRODUCTION

Agricultural programs have increased the importance of the individual farm plan. There is one basic assumption implicit in most farm programs. The program planners assume that the farm is a full-time enterprise for a farmer and his family and the farmer's organization makes the best use of all productive resources. This means that within an individual farm unit an approximate balance between land, labor, and capital is reached. Because such balance does not exist on all farms, it is considered desirable to know what organizations do exist in a community so that the most logical methods may be developed to attain the desirable farm plan for each farm.

The purpose of this study was to determine the relationship between the resources of a community and the resulting community pattern. As a community matures, many forces influence the sizes and types of farms in the community pattern. For a good farm plan to operate successfully in a community, it is necessary that these forces be understood. In addition, it is necessary that the results of these forces, the community pattern, be known and understood. To be effective, a farm plan must be realistic. The plan must be derived from situations similar to the one in which the farmer finds himself.

Much work has been done in classifying farms by size and type and delineation of type-of-farming areas. The relationship between resources of areas and the type of farming followed in that area has been studied quite extensively. However, little or no work has been done on the relationships which exist between different sizes and types of farms and among all farming units of a community.

This study was an attempt to determine the effect of inter-farm relationships upon individual organizations in addition to the relationships which exist between the resources of a community and the farm organizations. It was an attempt to explain the variations in the unite of a community and the resulting community pattern and to explain why the unite existed as they did. Data presented in this study may be of value in developing farm plans to meet the requirements of all farms in a community rather than the average farm.

METHOD OF PROCEDURE

Several qualifications were necessary for the community selected. It had to be a mature agricultural community, that is, one in which farming was a definite, well-established practice, and one in which agriculture was dominant and the farm organization and income were not influenced by any industry foreign to agriculture. In selecting the community, it was necessary to select a trading center that was large enough to furnish a market for nearly all the farm products produced and most of the goods consumed by the rural people in that community, yet small enough so that a complete study could be made in a relatively short time. The Frankfort community, located in the southeast corner of Marshall county, Kansas, was selected (Figs. 1 and 2).

First, the approximate size of the selected community was determined. This was done by consulting the operators of produce houses, grocery stores, banks, and other places of local business. The area they outlined as the trade territory of the Frankfort community is shown in Fig. 2.

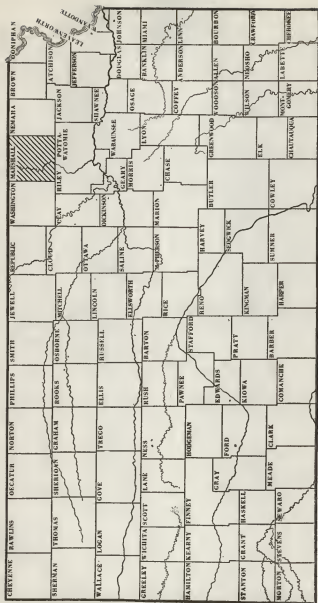


Fig. 1. Location of Marshall county, Kansas.

MARSHALL COUNTY

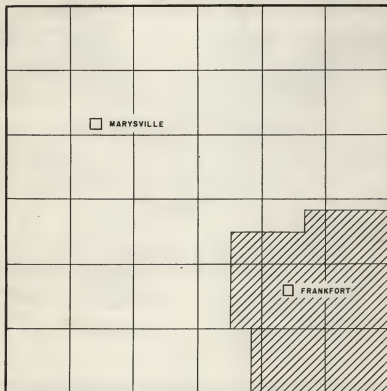


Fig. 2. Location of Frankfort community.

The names of all the operators and the sizes of their farms were obtained from the Assessors' Agricultural Statistical Rolls. The exact location of the farms was obtained from the county Agricultural Conservation office at Marysville. After mapping the trade territory it was divided into two areas—one, a small, concentrated area immediately surrounding Frankfort; the other a larger area surrounding the smaller area. Because Frankfort is nearly in the center of a township, the township lines were used as boundaries for the smaller concentrated area. The inner community was called Area 1 and the remainder of the community Area 2.

The farms in the community were then stratified according to size. This was made possible because the name of the operator and the size of his farm was obtained from the assessors' rolls. The farms were divided according to size into six groups: 0 to 99 acres, 100 to 199, 200 to 299, 300 to 399, 400 to 699, and 700 or more acres.

In getting the information, two types of schedules were used. One was a detailed schedule from which the approximate net farm income was determined, and the other was a simplified schedule from which the gross income and type was determined. On both, however, additional information was obtained on other related factors. It was considered desirable to take about 120 detailed records and about the same number of simplified records. The estimated number of records for each size group was determined on the basis of the number necessary to treat them statistically without having an error so large that the results would be non-significant. Approximately one-half of the desired number of detailed records were taken in Area 1, around Frankfort, and the other one-half in Area 2. This meant taking only 10 detailed records for each size group in each area, or the total number of farms in that size group

if it were less than 10. In the size groups which had more than 10 farms, random numbers were used to pick the sample. Simplified records were taken on the remaining farms within Area 1 on which detailed records were not taken. The reason for complete enumeration of farms in Area 1 was that the farms located in that area were in the geographic center of the community and were assumed to be more homogeneous insofar as community interests were concerned. However, this division by areas was used only in selecting the sample and was not used in the analysis of the data.

In Area 2 an attempt was made to take enough schedules to obtain the desired number. However, due to the fact that the number in the universe was smaller than the desired number for a sample in some size groups and because of a shortage of time, the desired number of schedules was not attained. Ninety-six detailed records and 81 simplified records were obtained for analysis.

REVIEW OF LITERATURE

Only limited published material explaining the actual community pattern was available. There was some literature on the distribution of farms by size and type and the importance of the adaptation of agricultural programs to the modal or typical farm. Few writers, though, discussed the relationships that existed between the different sizes and types of farms within a community and the resulting community pattern.

Kifer (6) said that farming communities in which farms were all of a precise size just large enough for a minimum income and in which farms were so operated that each was a self-contained economic unit were young immature

communities and their characteristics were not common to a mature agricultural community. A mature, healthy community indicated that the farms evolved into the accustomed pattern and showed a range in size and differences in types.

Ellickson and Brewster (2) contended that there were four kinds of farms, large-scale, adequate, marginal, and inadequate, and that a "shocking waste of manpower" existed on the inadequate and marginal farms, most of which were small. They concluded that those farmers capable of handling a larger unit should be provided with more land and the others should be trained for work for which their abilities qualified them instead of farming.

One of the first to recognize the need for rather rigid classification of farms and the importance of the individual farmer was Spillman (3) who introduced an economic point of view and particularly raised the question of the farmer's economic policy. He considered it a question which, by implication at least, was one of individual farms and not a question of general policy.

Grimes (5) stated that a plan for the region may be made but before applying the plan to an individual farm the farms of the region should be classified by size and by types within size groups. After determining the most desirable quantities of major products to be produced by the region, the problem in making plans for each size and type group of farms was to determine the most desirable combination of crops and livestock permitted in consideration of other groups of farms and the total desirable for the aggregate of all farms in the area.

According to a study made in Connecticut by Davis (1), farms were operated under a great variety of conditions. He said that research material indicating and explaining these variations was necessary to supply the farmer with economic information which affected his individual farm policy. Another reason for the

need of this kind of material was the demand for public policies in agriculture to be adjusted as closely as possible to the needs of different regions and different kinds and sizes of farms and farming systems. In his discussion on classification of farms, Davis said that the classification included certain sub-types that afforded a low real income but the farmers somehow managed to get along. He concluded that such farms were a part of the supply area of every commodity and that "they are always with us."

Davis' classification of farms was a step toward the analysis of farms into like groups. He did not assume, as was done in some quarters, that if a mode existed in the enterprise and structure and size of farms that adjustments adapted to modal farms were suited to the entire classification. Nevertheless, he said it could not but be true that more specific statements could be made about a group of farms which possessed a high degree of homogeneity with respect to enterprise, structure, and size and when knowledge was possessed of the practices and organization than there could be made about the generality of all farms. Farm management could make its greatest progress by narrowing the classifications and making particular adjustments rather than general recommendations.

Elliott (3) thought recommendations for the "representative farm" were the most applicable for an area. He said that program planners in their job of advising farmers were desirous of making their recommendations as specific as possible. The diversity in organization of farms in different areas and in the same or different size groups in the same area suggested the inadvisability of making "blanket" recommendations for farmers as a whole. On the other hand it was impractical to go to the other extreme and attempt to advise every individual farmer. He contended that within an area the range in organization

was almost as wide as the range in size. In a study which he made of organizations of 100 farms of all sizes from a representative type of farming area in the Hard Winter Wheat Belt, an array was first made on the basis of size and then on the basis of organization within size. Within the 320-acre group, he found four distinct organizations. These were the typical farming systems which he had been seeking. Elliott thought this analysis gave a more accurate and definite picture of the farming systems found than had been obtained when an average of all farms was taken.

According to Elliott, agricultural planners who made recommendations for average farms overlooked the fact that there was a wide variation in the size of enterprises handled both on individual farms and typical farms—that while it was decidedly to the advantage of certain ones to follow the recommendations, others actually found it advantageous to do the opposite. He concluded, however, that if recommendations were made in the light of the conditions and needs of typical groups on given sizes of farms and in homogeneous type-of-farming areas, such errors would be eliminated.

AGRICULTURAL DEVELOPMENT PRIOR TO 1940

The first settlers in the Frankfort community came in ox-drawn covered wagons in 1861. Land titles were acquired by the right of pre-emption. The Frankfort Town Company was organized in Marysville, the county seat of Marshall County, in 1867. The company purchased section 16 in township 4, range 9, and laid out a town site which originally was called Frank's Ford. A railroad reached Frank's Ford in 1867 and with it came more settlers. In 1875, the town of Frankfort was granted a charter and incorporated as a city of the third class.

The first settlers in the community brought their equipment with them and settled on the fertile bottom lands along the streams. They practiced general farming, largely self-sufficing. Corn, wheat, oats, rye, barley, and buckwheat were among the first crops grown. The distribution of these various crops has changed from time to time depending upon climatic and economic conditions. Other crops which were introduced after that time were flax, alfalfa, sweet clover, and many of the different types and varieties of sorghums.

The physical features, climate, economic conditions, and characteristics of people in Marshall county were considered sufficiently homogeneous for the purposes of this study to assume that the trends of agricultural developments for the county as a whole were typical of the development of the Frankfort community.

The trend in size of farms has not been so pronounced nor the changes so great for Marshall county or the Frankfort community as other parts of the state. There was a slight decrease in size of farms from 1920 to 1925 and again from 1930 to 1935, but the general trend has been toward larger farms. This trend in size has been accompanied by a decrease in the number of small farms and an increase in the number of large farms. There was a decrease in the total number of farms from 1920 to 1925 and an increase from 1925 to 1935. However, the number of farms reported in 1940 was slightly less than the number reported in 1925. The larger farms naturally occupied a larger percent of the land in 1940 than in 1925, and as a result there were fewer farms. This indicated a trend toward an increase in large farms and a decrease in small farms.

Approximately 60 percent of the land in Marshall county is under cultivation with corn as the principal crop, followed in order of acreage by wheat,

oats, and alfalfa. Barley and sorghums have been grown to a much less extent than the four leading crops, except that the sorghums became more important in recent years, especially after 1934. During the last six years sorghums were more important than barley and approached the importance of alfalfa from an acreage standpoint. Forage sorghums increased more than grain sorghums. Small acreages were reported for rye, flax, and soybeans.

The principal change in the use of cropland in the county and in the Frankfort community during the last three decades were shifts in the acreages of corn and wheat. This community is located in the transition zone between the Corn Belt and the Winter Wheat Area. Climatic and physical conditions are adapted to both corn and wheat. Because of its location general farming was quite common and the farm organization was quite dynamic. That is, the farmer was able to adapt his organization to meet the climatic and economic conditions. These shifts in the acreages of wheat and corn are indicated rather clearly in Table 1. The greatest shifts occurred in the last four years when the acreage of wheat exceeded that of corn. Climatic conditions were the most influential factors accounting for this shift. Low yields of corn were produced in the years 1934 to 1937 because of the severe drought. As a result, the farmers shifted a part of their corn acreages to wheat. After they had shifted quite a large acreage of corn to wheat, the uncertainty of a corn crop, lack of livestock for which it was necessary to raise feed, and the relatively low labor requirements for wheat production made the farmers reluctant to shift back to corn.

There were several changes in the numbers of livestock during the last three decades. The number of workstock decreased continuously after 1911. In 1940 the number of workstock reported was only 53 percent of the number reported in 1911. The numbers of milk cows fluctuated less than any other kind of

Table 1. Ratio of acres, farm prices, and farm values per acre of wheat and corn. Marshall county, Kansas.

Year	Ratio of acres of wheat to acres of corn	Ratio of price of wheat to price of corn	Ratio of value per acre of wheat to corn
1910	.03	1.76	1.28
1911	.34	1.53	1.53
1912	.37	1.50	1.25
1913	.38	1.10	1.21
1914	.72	1.21	1.91
1915	.74	1.75	.64
1916	.32	1.67	1.38
1917	.30	1.79	1.00
1918	.41	1.39	2.79
1919	.62	1.57	1.82
1920	.60	2.74	1.83
1921	.68	3.59	2.08
1922	.69	1.79	1.16
1923	.66	1.42	.82
1924	.49	1.24	1.06
1925	.38	2.00	.60
1926	.33	1.74	3.08
1927	.39	1.77	1.13
1928	.38	1.39	.80
1929	.39	1.34	1.14
1930	.37	1.00	1.21
1931	.33	1.38	1.25
1932	.30	2.13	1.07
1933	.30	2.09	2.65
1934	.41	1.04	3.46
1935	.52	1.38	3.91
1936	.60	.89	4.00
1937	1.36	1.69	4.34
1938	1.83	1.17	.60
1939	.90	1.16	1.09
1940	1.04	1.10	1.98

Source: Biennial Reports of the State Board of Agriculture.

livestock in the county. The number of milk cows reached a peak in 1916 and a low in 1924. The number in 1940 was slightly above the 1910 to 1940 average. Other cattle numbers reached a high in 1917 and again in 1931. The number in 1940 was approximately equal to the 1910 to 1940 average. The number of sheep has increased almost steadily since 1910. There were more than ten times as many sheep in 1940 as there were in 1910, but the total number was still relatively low. Swine numbers fluctuated more than any other type of livestock. The highest number was reported in 1923 and the lowest in 1935. The number in 1935 was less than one-third the number in 1923, but the number in 1940 was slightly more than the 1910 to 1940 average.

The Frankfort community was adapted to rather rapid shifts in its systems of farming. Thus it responded rather quickly to climatic and economic conditions. Some of the livestock specialty farms were shifted to cash-grain farms during the nineteen thirties. The cash-grain farms predominated by corn shifted the acreage of corn to wheat during the drouth years. Operators of general farms changed their organization and operations from year to year to place more emphasis on the enterprise that had the most favorable price outlook. The highly specialized dairy farms governed their intensity of production quite largely by price changes.

Farm real estate values in the county tended to follow the trend in farm prices. In 1910, the value of land and buildings was reported at \$69.09 per acre. The valuation then increased until 1920 when the average value per acre of land and buildings was \$111.41. After 1920, a lower average valuation was reported in each five-year census. By 1940 the per-acre valuation was \$42.67. The downward trend in land values since 1920 resulted in exploitation of both physical and human resources.

Farm credit has played an important part in the development of the Frankfort community. During the period of rising farm prices prior to and through most of the nineteen twenties, farm credit was obtained easily. The fall in farm prices accompanied by lowering of land values resulted in over capitalization. Farm mortgage foreclosures followed because repayment of money borrowed during the period of high prices was difficult or even impossible when prices fell to their low point. By the latter part of the nineteen twenties and early thirties, many farmers were burdened with debts and had little, if any security to offer for the needed credit. The Federal government started advancing emergency credit during this time and many farmers took advantage of this and the already existing governmental lending agencies' credit. These sources of credit became important; the two most important ones were the National Farm Loan Association and the Farm Security Administration. The Production Credit Associations served few operators in this community. The local banks served as an important source of short time credit, but they made few long-time loans.

Other changes had a marked effect upon the agriculture in the Frankfort community. Two railroads supplied Frankfort with transportation facilities. But with the coming of good roads, trucks, and automobiles, the number of hauls performed by the railroad declined rapidly.

Technological changes in agriculture contributed to the growth and development of the community and influenced many of its changes. Increased mechanization cut down the labor requirements for various farm operations and allowed the operator to farm a larger unit. This was a contributing factor in increasing the size of farm and decreasing the number of farms. Soil scientists encouraged farmers to practice contour tillage, to construct terraces, to rotate crops, and to raise legumes as a means of building up and maintaining soil

fertility. The use of silos, flour and feed mills, community sale rings, and cold-storage food lockers also influenced the development of agriculture in this community.

New developments with their resulting changes in agriculture had varied effects upon this community. Progress was related to the response of producers to new opportunities of production. The response to these opportunities and developments in the Frankfort community was indicated by the pattern of human activity found in its agriculture in 1940.

DISTRIBUTION OF FARMS BY SIZE, TYPE, AND TENURE, 1940

The Frankfort community extended outward from the city of Frankfort in a radius of about eight miles, interlocking with smaller trade centers. The area outlined by tradespeople and covered by the survey was 236 square miles or 151,040 acres. According to the Assessors' Agricultural Statistical Rolls there were 655 farms within this area in 1940. The average farm was 231 acres, but the modal farm was only 160 acres in size. The distribution by size of farm is shown in Table 2. The greatest number fell in the second size group which includes the 160 acre farms. Seventy-seven percent of the 655 farms were less than 300 acres in size. There were a few large farms although there was one of more than 2,000 acres which was large for the section of the state in which Marshall county is located.

Table 2. The number and percentage distribution of farms in the Frankfort community by size groups, 1940.

Size group in acres	Number	Percent
0-99	109	17
100-199	241	37
200-299	151	23
300-399	88	13
400-699	54	8
700 or more	12	2
Total	655	100

One hundred and seventy-seven farms of the 655 in the Frankfort community were surveyed. On 96 of these farms detailed farm records were taken and on 81 farms simplified farm records were taken. A cross classification by type within size for the farms surveyed is shown in Table 3. The basis for determining type was source of gross farm income. The gross farm income included changes in inventory values, purchases and sales, and home-used products. The relation which the value from each farm enterprise bore to the total value of products for the whole farm provided the basis for the type classification.¹

The source of income was segregated according to type of farm enterprise and the exact percentage of the income from each enterprise was determined. If 40 percent or more of the gross returns came from one enterprise such as dairy, the farm was classified as a dairy farm. If two enterprises contributed at least 40 percent each, the farm was classified by the combination of the two types, as dairy-cash grain. Farms were classified as general farms when the value of products from any one source did not represent as much as 40 percent of the total value of all products of the farm. If the value of home-used products made up 50 percent or more of the gross income, the farm was classified as self-sufficing. If the operator worked off the farm more than 150 days, the farm was classified as a part-time farm in addition to the type determined by source of gross income. The cash-grain type includes the sale or inventory increases of such crops as wheat, corn, oats, barley, flax, and grain sorghums. There were no crop specialty farms which included such crops as hay, soybeans, cowpeas, potatoes, and other field crops.

¹Basis for determining type of farm was quite largely adapted from the basis used by Elliott (4), p. 5-12.

Table 3. Distribution of selected farms within size groups by type of farm for the Frankfort community, 1940.

Type of record	Type of farm	Number and size of farms by size groups in acres						
		0-99	100-199	200-299	300-399	400-699	700 or more	All sizes
Detailed	Total	17	22	18	16	16	7	96
	Cash-grain	3	6	7	5	10	4	35
	Dairy	8	8	6	4	1		27
	General	1	5	4	5	2	2	19
	Beef	1		1	2	3	1	8
	Hog	1	2					3
	Self-sufficing	3						3
	Dairy - cash-grain							
	Poultry		1					1
	Part time 2/	2	1					3
Simplified	Total	11	18	26	12	14		81
	Cash grain	2	9	16	10	9		46
	Dairy	5	3	4				12
	General	3	4	4	1	4		16
	Beef				1	1		2
	Hog		1	2				3
	Self-sufficing							
	Dairy - cash-grain	1						1
	Poultry							
	Part time 2/		1	1	1			3
All	Total	28	40	44	28	30	7	177
	Cash grain	5	15	23	15	19	4	81
	Dairy	13	11	10	4	1	0	39
	General	4	9	8	6	6	2	35
	Beef	1		1	3	4	1	10
	Hog	1	3	2				6
	Self-sufficing	3						3
	Dairy - cash-grain	1	1					2
	Poultry		1					1
	Part time 2/	2	2	1	1			6

/2 The part-time farms are included with the other types of farms depending upon their source of income other than work done off farm. Three part-time farms, one detailed and two simplified records, are included with cash-grain farms; two, one detailed and one simplified record, are included with general type of farms, and one, a detailed record, is included with hog farms.

The nine types of farms in this community were as follows: General, cash-grain, dairy, beef, hog, poultry, dairy-cash grain, self-sufficing, and part-time. The three most common were cash-grain, dairy, and general farms.

The percentage distribution by type was determined for each size group and these percentages were applied to the entire area. By assuming that a random sample was obtained in each size group and applying the proportion of each type within each size group to the entire area, the distribution of farms by type for all sizes was calculated. The calculated distribution of farms by type for the Frankfort community is shown in Table 4. Cash grain farming was definitely the most important type of farming in 1940. Dairying and general farming were about equal in importance but not as common as cash-grain farming. The other types were relatively unimportant from the standpoint of number, but they were important from the standpoint of inter-farm relationships.

Table 4. The number and percentage distribution of farms in the Frankfort community by type of farm, 1940./³

Type of farm	Number	Percent
Cash-grain	277	42
Dairy	165	25
General	131	20
Hog	29	4
Beef	25	4
Self-sufficing	12	2
Dairy-cash grain	10	2
Poultry	6	1
Part-time/ ⁴	26	4
Total	655	100

/³ Calculated from distribution of type for farms surveyed.

/⁴ Part-time farms are included with other types, depending upon source of gross farm income.

The distribution of farms by tenure of operation for this community was only slightly different from that for the state, but more so for the county. There were more full owners and fewer part owners and tenants than for the state as a whole, and more part owners and fewer tenants than for the county (Table 5).

Table 5. The percentage distribution of operators by tenure in the Frankfort community, in Marshall county, and in Kansas, 1940.*

Tenure	Frankfort community	Marshall county	Kansas
Full owner	39.4	35.9	33.5
Part owner	19.4	15.6	21.1
Manager		0.4	0.5
Tenant	41.2	48.1	44.9

*Source: Distribution for Frankfort community was calculated from survey sample. Distribution for Marshall county and for Kansas was obtained from Sixteenth Census of the United States.(7) p. 10 and 14.

A large proportion of the operators on the small farms were full owners (or owner operators). As size of farm increased, the proportion of full owners decreased. The opposite was true for the part owners. A small proportion of the operators on the small farms were part owners, but as size of farms increased, the proportion of operators that were part owners increased. At least 65 percent of the operators on the larger farms were part owners while at least 55 percent of the operators on the small farms were full owners. Approximately 50 percent of the operators on the middle-size farms were tenants, but the percent of operators that were tenants on either the small or the large farms was small.

Most of the smaller farms were dairy farms and were operated by the owner.

They were dairy farms not because they specialized in dairying, but because they had a small volume of business and the proportion coming from the dairy enterprise was high. The cattle handled on these farms usually were not of dairy type but were milked so that cattle sales, dairy product sales, and home-used products made up a large proportion of total gross income, classifying the farms as a dairy farm. Most of the self-sufficing farms were less than 100 acres in size. As size of farm increased to the middle size, more of the operators were tenants. The proportion of farms that were dairy farms decreased with increasing size with an increasing proportion of general and cash-grain farms. The larger farms were operated quite largely by part owners. They usually owned that part of their farm on which their farmstead was located and and rented additional land. Those on the river bottomland rented cropland and raised wheat, making them cash-grain farms. The operators on the upland rented either cropland and pasture or all pasture. Those who rented both cropland and pasture usually operated a general type of farm while those who rented only pasture, operated beef farms.

ORGANIZATION OF PRODUCTIVE RESOURCES IN 1940

Land

The distribution between cultivated and uncultivated land on each individual farm had much to do with the number and kind of livestock handled and the resulting farm organization. Approximately 55 percent of the farm land in Marshall county was cultivated and used for crop production. Thirty-two percent was in tame and native pasture and the remainder was in farmstead, timber, and waste. In the Frankfort community in 1940, 57 percent of the farm land was in

cropland, 32 percent was in permanent pasture, three percent was in meadow, and eight percent was in farmstead and waste (waste includes timber land).

As farms increased in size in the Frankfort community, the proportion of cropland decreased (Table 6). The smallest size group of farms had 68 percent of the farms in cropland, the largest size group had only 49 percent in cropland. The greatest decrease occurred in the two largest size groups. This inverse relationship between size of farm and proportion of cropland was accompanied by the direct relationship between size of farms and the proportion of permanent pasture. The proportion of the farm land in permanent pasture increased with an increase in the size of farm. Only 22 percent of the farm land of the small farms was in permanent pasture, but 43 percent of the larger farms was in pasture. The proportion of farm land in meadow was relatively low, but it tended to increase with an increase in size of farm. Approximately nine percent of all farms was in farmstead and waste.

Corn was one of the most important crops grown in the community in 1940. About one-third of the cropland was planted to corn although this proportion and the importance of corn tended to decrease with an increase in size of farm (Table 7). Wheat was the next most important crop from the standpoint of acreage. Wheat was less important than corn on the smaller farms, but as size of farm increased, the proportion of the cropland in wheat increased and the largest farms had a larger acreage of wheat than corn. The proportion of cropland in both grain and forage sorghums decreased with an increase in size of farm. At least 10 percent of the average crop acres for all farms in each size group was in some form of legume. The fourth size group average 15 percent in legumes.

Although important from the standpoint of livestock feed, oats was relatively unimportant in this area from the standpoint of acreage. Less than

Table 6. Distribution of farm land by major uses and by size of farm, average per farm for selected farms in the Frankfort community, 1940.

Land use	Number and size of farms by size groups in acres						
	0-99	100-199	200-299	300-399	400-699	700 or More	
	17 farms	22 farms	18 farms	16 farms	16 farms	7 farms	
	Acreage distribution						
Cropland	49	94	150	209	251	469	
Meadow	1	3	4	14	29	9	
Permanent pasture	16	37	59	84	160	416	
Farmstead and waste	6	11	20	29	43	66	
Total	72	145	233	336	383	960	
	Percentage distribution						
Cropland	68	65	64	62	52	49	
Meadow	1	2	2	4	6	1	
Permanent pasture	22	25	25	25	33	43	
Farmstead and waste	9	8	9	9	9	7	
Total	100	100	100	100	100	100	

Table 7. Distribution of cropland in specified crops and by size of farm, average per farm for selected farms in the Frankfort community, 1940.

Crop	Size and number of farms by size groups in acres									
	0-99	100-199	200-299	300-399	400-599	600-799	800-999	1000-1999	2000-4999	5000 or more
Corn	16	34	45	69	78	110				
Wheat	10	19	51	54	68	216				
Oats	2	10	9	18	21	24				
Barley	2	1	3		3	18				
Grain sorghum	3	4	8	6	13	4				
Forage sorghum										
Alfalfa	4	7	5	10	12	16				
Sweet clover	3	7	7	17	17	35				
Sudan	2	2	9	15	15	22				
All other	1	3	2	1	1	1				
	5	7	11	19	23	23				
Total	49	94	150	209	251	469				
	Percentage distribution									
Corn	33	36	30	33	31	24				
Wheat	21	20	34	26	27	46				
Oats	3	11	6	8	9	5				
Barley	4	1	2		1	4				
Grain sorghum	7	4	6	3	5	1				
Forage sorghum										
Alfalfa	9	8	3	5	5	3				
Sweet clover	5	8	5	8	6	7				
Sudan	6	2	6	7	6	5				
All other	1	3	1	1	1	1				
	11	7	7	9	9	5				
Total	100	100	100	100	100	100				

10 percent of the average cropland was planted in oats in most of the size groups. Barley was of even less importance because of the prevalence of chinch bug. For the same reason few of the farmers used sudan grass for either pasture or hay. Few farmers put up silage, but most of those who did used Atlas Sorgo, although a few used corn.

There was considerable variation in the average size and the proportion of the farm in the major land uses by type of farm (Table 8). The beef farms were largest, averaging 394 acres with 46 percent of the farm land in pasture and 44 percent in cropland. The cash-grain farms were nearly as large, averaging 379 acres but with only 27 percent of the farm land in pasture and at least 60 percent in cropland. The general type of farms averaged 327 acres with 56 percent of the farm land in cropland and 33 percent in pasture. Dairy farms, the other major type, had about the same proportion of farm land in cropland and pasture as did the general farms, but the average size of the dairy farms was only 184 acres. The average size of the hog farms was 120 acres and they had 64 percent in cropland. Part-time farms averaged only 105 acres with 71 percent in cropland. The self-sufficing farms were the smallest, averaging less than 40 acres.

The use of the cropland by the different types of farms varied almost as much as did the size of farm and major land uses (Table 9). The cash-grain farms had 42 percent of their cropland in wheat, compared to only 26 percent for general farms and 14 percent for dairy farms. The hog farms had the highest proportion of their cropland in corn with 63 percent. The beef farms had an average of 40 percent of their cropland in corn; dairy farms had 36 percent; general farms had 31 percent; and cash-grain farms had only 26 percent of their cropland in corn. The beef and dairy farms had more of their

Table 8. Distribution of farm land by major use and type of farm, average per farm for selected farms in the Frankfort community, 1940.

Land use	Number and type of farms									
	Cash-grain : 35 farms	Dairy : 27 farms	General : 19 farms	Beef : 8 farms	Hog : 3 farms	Self- sufficing : 3 farms	Poultry : 1 farm	Part-time : 1 farm	Part-time : 3 farms	Part-time : 3 farms
	Average distribution									
Cropland	232	103	178	173	77	26	102	74		
Meadow	13	4	7	20		2	25			
Permanent pasture	102	61	110	181	36	9	23	24		
Farmland and waste	32	15	32	20	7	2	10	7		
Total	379	183	327	394	120	39	160	105		
	Percentage distribution									
Cropland	61	56	54	44	64	67	64	71		
Meadow	3	2	2	5		4	16			
Permanent pasture	27	33	34	46	30	24	14	23		
Farmland and waste	8	9	10	5	6	5	6	6		
Total	100	100	100	100	100	100	100	100		

15 One part-time farm is included with cash-grain farms, one with general type of farm, and one with hog farms.

Table 9. Distribution of cropland in specified crops and by type of farm, average per farm for selected farms in the Frankfort community, 1940.

Crop	Number and type of farms									
	Cash-grain :	Dairy :	General :	Beef :	Hog :	Sufficing :	Poultry :	Part-time :		
	35 farms	27 farms	19 farms	8 farms	3 farms	3 farms	1 farm	3 farms		
	Average distribution									
Corn	60	37	56	69	49	10	13	31		
Wheat	97	15	46	21	4	8	27	22		
Oats	15	9	13	20	10	2	17	5		
Barley	2	2	1	1			9			
Grain sorghum	9	6	4	3	7	2		5		
Forage sorghum		7	11	11	1	1	24	3		
Alfalfa	12	9	13	22	2	3				
Sweet clover	11	6	10	18	2		4	1		
Sudan	2	2	1	1						
All other	14	10	23	7	2		8	5		
Total	232	103	178	173	77	26	102	74		
	Percentage distribution									
Corn	26	36	31	40	63	38	13	42		
Wheat	42	14	26	12	5	30	26	29		
Oats	6	9	7	11	13	9	17	7		
Barley	2	2	1	1			9			
Grain sorghum	4	6	2	2	9	8		7		
Forage sorghum	3	7	6	6		5	23	4		
Alfalfa	5	9	7	13	3	10	4	3		
Sweet clover	5	6	6	10	3			1		
Sudan	1	2	1	1						
All other	6	9	13	4	3		8	7		
Total	100	100	100	100	100	100	100	100		

1/5 One part-time farm is included with cash-grain farms, one with general type of farms, and one with hog farms.

cropland in livestock feeds. In addition to having a higher proportion of the cropland in corn, the hog farms also had a higher proportion of their cropland in grain sorghums. Considerable corn and wheat was raised on the part-time farms, but only small acreages of feed crops were raised.

The average size of the farms operated by full owners was smaller than for the other tenure classes (Table 10). The farms operated by full-owners averaged 210 acres, those operated by part owners averaged 438 acres, and those operated by tenants averaged 302 acres. On part-owned farms an average of 188 acres was owned and 250 acres was rented.

There was little difference in the major uses of the land by the different tenure classes. The average proportion of the farm in cropland was 56 percent and about 30 percent was in permanent pasture. The main difference was within the part-owner class. A higher proportion of the land owned by part-owners was in cropland and a higher proportion of the land they rented was in pasture.

Little difference was found in the use of the cropland by the tenure classes (Table 11). The tenant class had an average of 33 percent of their cropland in wheat, which was four percent higher than for the other tenure classes. The full-owner class had only 27 percent of their cropland in corn, an average of five percent less than the other classes. The full-owner and the part-owner classes had an average of at least 14 percent in legumes while the tenant class had an average of only nine percent of the cropland in legumes.

Apparently, crop acres were used first for feed crops for livestock. Any cropland that was farmed in excess of the quantity needed for feed was put to a cash-grain crop, usually wheat. Corn was produced as a cash-grain crop on only a few of the larger farms. The acreage of cropland needed for feed

Table 10. Distribution of farm land by major uses and tenure of operator, average per farm for selected farms in the Frankfort community, 1940.

Land use	Tenure of operator and number of farms				
	Full owner :	Part owner		Tenant	
	37 farms	21 farms	21 farms	38 farms	
	Farm	Farm	Operator	Landlord	Farm
	Acreage distribution				
Cropland	117	246	152	94	177
Meadow	8	10	4	6	10
Permanent pasture	71	143	71	72	88
Farmstead and waste	14	39	23	16	27
Total	210	438	250	188	302
	Percentage distribution				
Cropland	56	56	61	50	59
Meadow	4	2	2	3	3
Permanent pasture	34	33	28	38	29
Farmstead and waste	6	9	9	9	9
Total	100	100	100	100	100

Table 11. Distribution of cropland in specified crops and by tenure of operator, average per farm for selected farms in the Frankfort community, 1940.

Crop	Number of farms and tenure of operator		
	Full owned	Part owned	Tenant
	37 farms	21 farms	38 farms
	Acreage distribution		
Corn	32	81	56
Wheat	34	71	59
Oats	8	18	13
Barley	2	5	2
Grain sorghum	4	7	9
Forage sorghum	8	11	7
Alfalfa	8	21	9
Sweet clover	9	16	7
Sudan	1	3	2
All other	11	12	13
Total	116	245	177
	Percentage distribution		
Corn	27	33	32
Wheat	29	29	33
Oats	7	8	8
Barley	2	2	1
Grain sorghum	3	3	5
Forage sorghum	7	5	4
Alfalfa	7	8	5
Sweet clover	8	6	4
Sudan	1	1	1
All other	9	5	7
Total	100	100	100

production varied and was determined by the type of farm and quantity of livestock handled.

Livestock

The kind and numbers of livestock handled were obtained for each of the farms surveyed. The actual number of each kind, sex, and age of livestock was then converted into livestock units⁶ so that comparisons between different sizes and types could be made more easily.

The total livestock handled increased with an increase in size of farm (Table 12). The number of dairy cattle handled increased with size up to the fourth size group, then declined. The dairy cattle, for the most part, were so called because they were milked rather than because they belonged to a dairy breed. The larger farms handled the larger beef herds. In addition, they handled more hogs. The average farm in each size group had at least 100 chickens. The number of workstock kept was relatively low; the smaller farms had one team and the larger farms about two teams.

⁶Warren (9) p. 209-10, says, "In order to have a basis for comparing the amount of livestock kept, all kinds of livestock must be reduced to some unit that can be compared." The following were the number of livestock required to constitute one livestock unit.

Mature horses, mules or cattle	1
Colts or young cattle	2
Mature sheep	7
.....	14
.....	5
.....	10
.....	100

Table 12. The average number of livestock units for the different kinds of livestock by size of farm, for selected farms in the Frankfort community, December 31, 1940.

Kind of livestock	Number and size of farms by size groups in acres					
	0-99 17 farms	100-199 22 farms	200-299 18 farms	300-399 16 farms	400-699 16 farms	700 or more 7 farms
Dairy cattle	4.00	7.00	7.25	10.25	7.00	4.75
Beef cattle		2.00	4.00	9.50	19.75	38.25
Sheep			.35	.42	.35	9.24
Hogs	.30	.40	.70	2.00	1.30	4.60
Poultry	1.10	1.11	1.46	1.69	1.17	1.97
Total productive livestock	5.40	10.51	13.76	23.86	29.57	58.81
Workstock	2.00	3.00	3.00	4.00	5.50	3.50
Total livestock units	7.40	13.51	16.76	27.86	35.07	62.31

There was considerable variation in the type and total number of livestock units handled on the different types of farms (Table 13). The dairy farms handled the equivalent of 10 dairy cows, the beef farms handled the equivalent of 35 beef cows, the hog farms handled the equivalent of three hogs, and the poultry farm handled the equivalent of 250 hens. The beef farms handled almost as many hogs as did the hog farms, but the hog farms handled only a few beef cattle. The cash-grain farms handled only a few more dairy cows than did the general farms, but the general farms handled a larger beef herd. There were few beef cattle on the dairy farms. The sheep for the most part were handled on the larger general farms. The self-sufficing farms had no beef cattle or hogs and only a few dairy cattle, chickens, and sheep. The total number of livestock units handled on the cash-grain farms was little larger than the number handled on dairy farms, even though the average cash-grain farm was twice as large as the average dairy farm. The beef farms were approximately the same size as the cash-grain farms, but handled more than twice as many livestock units. The general farms handled approximately one-third more livestock units than did the cash-grain farms.

The part-owner operator handled more livestock than did the other two tenure classes (Table 14). There was little difference in the average total number of livestock units handled by the tenant and by the full-owner. However, the rented farms were larger and the number of acres per livestock unit was higher on the farms operated by a tenant than those operated by a full owner. More beef cattle and sheep but about the same number of other kinds of livestock were handled on the farms operated by part owners.

The number of livestock handled was determined quite largely by the size of farm and the distribution by major land uses. The type of farm indicated

Table 13. The average number of livestock units for the different kinds of livestock by type of farms, for selected farms in the Frankfort community, December 31, 1940.

Kind of livestock	Number and type of farms									
	Cash-grain : 33 farms	Dairy : 27 farms	General : 19 farms	Beef : 8 farms	Hog : 3 farms	Self-sufficing : 3 farms	Poultry : 1 farm	Part-time : 3 farms		
Dairy cattle	6.25	10.50	6.00	2.50	6.50	1.75	7.50	3.25		
Beef cattle	8.25	1.25	12.00	35.25	1.75			3.25		
Sheep	.56	.28	3.01			.21	.21			
Hogs	1.10	.60	1.20	2.70	3.10		.90	1.80		
Poultry	1.26	1.48	1.56	1.12	.65	.51	2.50	.90		
Total productive livestock units	17.42	14.11	23.77	41.57	12.00	2.47	11.11	8.80		
Workstock	1.00	4.00	3.00	6.00	3.00	1.00	5.00	2.00		
Total livestock units	20.42	18.11	26.77	47.57	15.00	3.47	16.11	10.80		

Table 14. The average number of livestock units for the different kinds of livestock by tenure classes, for selected farms in the Frankfort community, December 31, 1940.

Kind of livestock	Number of farms and tenure of operator			
	Full-owner	Part-owner	Tenant	
	37 farms	21 farms	14 farms	
Dairy cattle	5.00	8.00	7.50	
Beef cattle	8.50	14.50	7.50	
Sheep	.70	2.52	.28	
Hogs	1.00	1.80	1.20	
Poultry	1.38	1.52	1.17	
Total productive livestock units	16.58	28.34	17.65	
Workstock	4.00	4.00	3.00	
Total livestock units	20.58	32.34	20.65	

more clearly the kind of livestock handled than did the size of farm. The ability of the operator to handle livestock also determined the kind and number of livestock found on the farms.

Farm Investment

The average farm investment increased from approximately \$4,000 for the small farms to \$44,000 for the large farms (Table 15). Nearly 80 percent of the farm investment was in land and buildings for each size group. The smaller farms, however, had a larger proportion of this 80 percent in buildings and less in land. As size of farm increased, the proportion of investment in buildings decreased. The small farms had a larger proportion invested in workstock and less in tractors than did the larger farms. Approximately seven percent of the average farm investment for all size groups was in machinery and equipment.

The beef farms had the highest average investment for all farms by type (Table 16), and the proportion of the average investment in productive livestock also was highest on the beef farms. The average investment of the dairy farms was less than one-half of the average investment of either the cash-grain or general farms, but the proportion in productive livestock was relatively high. The average investments of the cash-grain and general farms were about equal, but the general farms had a higher investment in productive livestock. The average investment of the self-sufficing farms was less than \$3,000. The part-time farms had an average investment almost as large as the hog and the dairy farms. About eight percent of the total farm investment on the cash-grain farms was in machinery, seven percent on the general farms, and

Table 15. Distribution of the value of the average farm investment by size of farm for selected farms in the Frankfort community, 1940.

Farm investment	Number and size of farms by size groups in acres					
	0-99 18 farms	100-199 22 farms	200-299 18 farms	300-399 16 farms	400-499 16 farms	500 or over 7 farms
Crops and feed	\$ 73	\$ 109	\$ 289	\$ 365	\$ 821	\$ 1,098
Livestock						
Productive	350	632	1,008	1,549	2,182	3,558
Workstock	130	202	264	216	308	267
Machinery and equipment						
Auto	97	161	186	251	246	400
Truck	1	5	37	47	79	247
Tractor	8	20	177	362	333	1,074
All other	159	195	394	613	780	1,760
Land	1,486	4,059	6,617	9,120	14,311	29,518
Dwelling	950	1,164	910	1,444	1,419	2,632
Other improvements	709	988	1,198	1,648	1,615	3,499
Total	\$3,963	\$7,535	\$11,070	\$15,615	\$22,094	\$44,053

Table 16. Distribution of the average value of the farm investment by type of farm for selected farms in the Frankfort community, 1940.

Farm investment	Number and type of farms									
	Cash-grains : 35 farms	Dairy : 27 farms	General : 19 farms	Beef : 8 farms	Hog : 3 farms	Self- sufficing : 3 farms	Poultry : 1 farm	Part- time : 3 farms	5/	
Crops and feed	\$ 528	\$ 168	\$ 444	\$ 446	\$ 101	\$ 38	\$ 81	\$ 76		
Livestock										
Productive	1,149	971	1,567	2,922	713	142	448	438		
Workstock	220	225	214	360	172	58	250	122		
Machinery and equipment										
Auto	234	163	191	279	151	104	62	215		
Truck	91	21	40	2	7	39	0	0		
Tractor	386	59	331	109	0	0	0	0		
All other	703	318	572	480	129	55	69	130		
Land	11,506	3,809	10,111	11,583	5,211	830	6,715	4,085		
Dwelling	1,392	1,056	1,608	1,219	648	845	390	1,285		
Other improvements	1,639	1,017	1,462	1,876	580	605	865	943		
Total	\$17,848	\$7,807	\$16,540	\$19,276	\$7,712	\$2,716	\$8,880	\$7,294		

5/ One part-time farm is included with cash-grain farms, one with general farms, and one with hog farms.

about four percent on the beef and hog farms.

The farms operated by part owners had a higher average investment than either of the other two tenure classes (Table 17). The part owners farmed more land, had more livestock, and in general had a larger volume of business. The part-owned farms had an average investment of about \$19,800, the tenant farms \$12,600, and the full-owned farms about \$12,200. The operators who owned only a part of their farm land had nearly as large an average investment as did the operators who owned all of their farm. Although the amount invested in machinery was lower for the rented farms than the other two tenure classes, the proportion of total investment in machinery was higher. The part-owner had a slightly higher proportion invested in livestock than did the full-owner and both had a higher proportion than the tenant. Only a few of the landlords of rented farms had any interest in either livestock or machinery and equipment.

Farm Income

The total farm income and expenses were obtained on the detailed farm records. The gross farm income included inventory increases, sales, home-used products, and income from custom machine work. The total farm expenses included crop and livestock inventory decreases and purchases, machinery and equipment depreciation and upkeep, improvement depreciation and repair, real estate and personal taxes, cost of farm organization dues, farm papers, telephone, hired labor, board for hired labor, and unpaid family labor.

The farm income summary by size groups is shown in Table 18. The net farm income tended to increase with an increase in size of farm. A large part of the earnings for the small farms came from livestock products sales and home-used products. A large part of the earnings for the larger farms came from

Table 17. Distribution of the average value of the farm investment by tenure of operator for selected farms in the Frankfort community, 1940.

Farm investment	Number of farms and tenure of operator					
	Full-owner:		Part - Owner		Tenant	
	27 farms	21 farms	21 farms	38 farms	38 farms	38 farms
	Farm	Farm	Farm	Operator	Farm	Operator
Crops and feed	\$ 388	\$ 463	\$ 463	\$ 295	\$ 295	\$
Livestock						
Productive	1,156	1,951	1,951	1,023	975	48
Workstock	195	312	312	208	208	
Machinery and equipment						
Auto	200	251	251	174	174	
Truck	26	76	76	52	52	
Tractor	80	409	409	285	256	29
All other	360	795	795	487	461	26
Land						
Dwelling	6,915	12,186	4,375	7,811	8,009	8,009
Other improvements	1,512	1,452	1,274	178	51	894
	1,332	1,874	1,257	617	1,142	1,136
Total	\$12,164	\$19,769	\$11,163	\$8,606	\$12,620	\$2,478
						\$10,142

crop sales. The total farm expenses increased with an increase in size of farm. The machinery and equipment expense increased with increase in size of farm up to the fourth size group and then decreased. The cost of labor was a more important item on the larger farms than it was on the small farms.

The average rate of return for farm capital exclusive of operator's labor was only 2.3 percent for the smallest size group of farms (Table 18). The rate of return for the second size group was 5.0 and the rate of return tended to increase with an increase in size of farm. The largest size group had an average return of more than 10 percent for the farm capital investment.

There was considerable variation in farm income by type of farm (Table 19). The cash-grain farms were largest from the standpoint of gross returns and at least 45 percent of their gross income came from crop sales. The average gross income for the general and the beef farms was almost equal, but the beef farms got a larger share of their income from livestock. The actual value of products used by the families on the self-sufficing farms was no higher, if as high, as on many other types of farms. However, the proportion of gross returns made up of home-used products was considerably higher on the self-sufficing farms. The farm expenses on the cash-grain farms were nearly double those on the dairy farms. Although the gross income on the general and beef farms were nearly equal, the beef farms had lower expenses and consequently a higher net income. The machinery and equipment accounted for a larger portion of the total farm expenses on the cash-grain and general farms than on the other types. Cost of hired manual labor was a more important expense on the beef farms than on the other types, but the most important labor cost on the dairy farms was unpaid family labor.

From the standpoint of average return on investment, the cash-grain farms

Table 18. Farm income summary by size groups, average per farm for selected farms in the Frankfort community, 1940.

Item	Number and size of farms by size groups in acres						
	0-99 : 17 farms	100-199 : 22 farms	200-299 : 18 farms	300-399 : 16 farms	400-699 : 16 farms	700 or more : 7 farms	
Gross farm income	\$ 1271	\$ 1609	\$ 2659	\$ 3835	\$ 4646	\$ 11611	
Total farm expenses	878	893	1311	1970	5323	5919	
Net farm income	393	716	1348	1865	5323	5692	
Interest on farm capital @ 4%	159	301	443	625	884	1762	
Operator's labor earnings	234	415	905	1240	1439	3930	
Value of family labor other than operator's	56	57	165	140	183	260	
Family labor earnings	290	472	1970	1380	1622	4190	
Value of operator's labor	302	338	350	352	343	360	
Return for farm capital	91	378	998	1513	1980	5332	
Practical return for farm capital	2.3	5.0	9.0	9.7	9.0	12.1	

Table 19. Farm income summary by type of farm, average per farm for selected farms in the Frankfort community, 1940.

Item	Cash- in	Dairy	General	Beef	Hog	Self	Part- time
	35 farms	27 farms	19 farms	8 farms	3 farms	3 farms	5/
Gross farm income	\$ 4498	\$ 2130	\$ 3628	\$ 3655	\$ 1955	\$ 606	\$ 1026
Total farm expenses	2274	1182	1905	1794	1329	548	1320
Net farm income	\$ 2224	\$ 948	\$ 1715	\$ 1861	\$ 626	\$ 58	\$ 424
Interest on farm capital							\$ 826
Operator's labor earnings	714	312	661	771	308	109	355
Value of family labor other than operator's	1510	636	1053	1090	318	-51	69
Family labor earnings	177	127	76	101	0	53	100
Value of operator's labor	1687	763	1129	1191	318	-2	169
Returns for farm capital	333	356	333	354	280	283	360
Practical return for farm capital	1891	592	1362	1507	346	-215	64
	10.6	7.2	8.2	7.8	4.5	-8.3	.7
							9.8

5/ One part-time farm is included with cash grain farms, one with general farms, and one with hog farms.

were the most profitable (Table 19). The average percentage return for farm capital was about equal for the dairy, general, and beef farms. The average net income for the self-sufficing farms was only \$58 and after deducting the value of the operator's labor, the return for farm capital was a minus 8.3 percent. The part-time farms had an average net income of \$826 which represented 9.8 percent return for capital invested. The income for the part-time farms was exclusive of income from labor done off the farm or the other part-time business.

The part-owned farms had the highest average income for the tenure classes (Table 20). The average gross income for the part-owned farms was \$4,719; for the rented farms it was \$3,203; and for the full-owned farms it was \$2,703. The operator's share of the income on the rented farms was lower than the income on the full-owned farms. The tenant farms received a larger proportion of their income from crop sales than did the other tenure classes. Although the farms operated by full-owners handled nearly the same number of livestock units as did the operators on rented farms, the proportion of farm income coming from livestock was higher. In the part-owned class the landlord received all of his income from crop sales and AAA payments. A few landlords in the tenant class had an interest in the livestock and received a part of their income from this source. The operators on the part-owned farms received a higher proportion of their return from custom machine work than did the operators of the other tenure classes. The farms operated by full-owners had a lower average income and higher average expense than the tenant farms.

The rate of return for farm capital was highest for the tenant farms (Table 20). The operator on the tenant farms received an average return of 36.6 percent on his investment, and the landlord received 4.4 percent, making

Table 20. Farm income summary by tenure of operator, average per farm for selected farms in the Frankfort community, 1940

Item	Number of farms and tenure of operator					
	Full-Owner: 17 farms	Part-Owner: 21 farms	Tenant: 38 farms			
	Farm	Farm	Operator	Landlord	Farm	Operator
Gross farm income	\$ 2703	\$ 4719	\$ 4166	\$ 553	\$ 3203	\$ 2420
Total farm expenses	1601	2477	2282	193	1501	1155
Net farm income	\$ 1102	\$ 2242	\$ 1884	\$ 360	\$ 1702	\$ 1265
Interest on farm capital @ 4%	487	791	447	304	505	99
Operator's labor earnings	615	1451	1437	14	1197	1156
Value of family labor other than operator's	78	217	217		124	124
Family labor earnings	693	1668	1654	14	1321	1280
Value of operator's labor	321	347	347		349	349
Returns for farm capital	781	1895	1537	358	1353	906
Practical return for farm capital	6.4	9.6	13.8	4.2	10.7	36.6
						4.4

an average return of 10.7 percent on total farm investment for the tenant farms. On the part-owned farms the operator received an average of 13.8 percent on his investment, the landlord of the rented portion of the farm 4.2 percent, and the return on the total farm investment was 9.6 percent. The full-owner operators received an average return of 6.4 percent on their total farm investment.

The basic factors for the organization of the farms in the community were determined largely by the natural resources. In addition, there were other factors which were important in determining the individual organizations. These other factors which were measured were, in a sense, community resources. They influenced the resulting community pattern and herein were grouped together and called inter-farm relationships.

INTER-FARM RELATIONSHIPS

In every community there is a certain degree of cooperation among the various members. There is cooperation between communities and within each community. Within a community there is cooperation between the rural and the urban groups, between rural groups, and within rural groups. Each community is made up of a number of these rural groups more commonly known as neighborhoods.

Neighborhoods are the smaller of the two natural social groupings, neighborhoods and communities. Neighbors feel a sense of belonging to a local area or group and know each other intimately. Factors which contribute to neighborhood loyalty are attendance at the same church, club meetings, the use of the same school, and common trading places. Of more importance to farm organization are the exchange of work and mutual borrowing and lending of equipment

and supplies. This study was particularly concerned with these latter factors which more directly affected the farm organization.

Farm Labor

The individual operator placed much dependence upon neighborliness and exchange of labor and equipment when he first became established. However, he was dependent upon it to a certain extent at all times and especially so when labor and equipment were scarce and high in price.

The more common operations for which labor and equipment were exchanged among farmers in the Frankfort community in 1940, were threshing, haying, putting up wood, and putting up feed. The less common operations were combining, shocking grain, silo filling, and miscellaneous operations which included such work as butchering and driving cattle. It was difficult to segregate exchange of labor and exchange of only equipment so both were considered together in this report and called work exchanged.

Nearly all of the oats and barley and some of the wheat were cut with a binder and required neighborhood cooperation for threshing the grain. Six or more farmers got together with teams and racks and hired a grain separator to do the threshing. This group of farmers made up what is commonly called a "threshing ring", and exchanged all the work necessary to thresh the grain for each member of the group. Much of the wheat was combined in 1940 so the size of the harvest crew and the length of the harvest season was shorter than formerly. A few of the operators who had only a small field of oats fed the bound grain in the bundle rather than spend the necessary time to have it threshed.

Many neighbors exchanged labor and equipment for putting up both alfalfa and prairie hay. For harvesting, the farmers usually exchanged both labor and equipment, but for haying they more often exchanged only labor. Two or three, but sometimes more, operators got together with teams and hay racks or sweep rakes, depending upon the method used, and put up hay for each other. In some cases, the equipment such as hay stackers or sweep rakes, was owned jointly by those who made up the haying crew.

The equipment of the individual operator determined whether he exchanged only manual labor or custom work for the other farm operations. Most of the exchange work for putting up wood was the labor necessary for sawing it. The farmers usually exchanged both labor and equipment for putting up feed and for filling the silo. A few of the operators borrowed equipment such as a drill or a lister and helped the lender put up hay, feed, or wood as payment for the use of the equipment. A few of the operators who hired their grain combined helped by driving the tractor or ran the combine as partial payment for the custom work hired.

Fewer of the operators on the small farms exchanged work than those on the middle size farms (Table 21). Fifty-seven percent of the operators on the small size group of farms exchanged an average of nine days' work as compared to 82 percent of the operators on the fourth size group who exchanged 19 days of work. The operators of the larger farms exchanged fewer days of work than did the operators on the middle-size farms.

There was considerable variation in the quantity of work exchanged on the different types of farms (Table 22). Ninety percent of the operators on the beef farms exchanged an average of 20 days of work—more than for any other type. Eighty-four percent of the operators on the cash-grain farms

Table 21. Percent of farms reporting the specified kinds of work and the average number of days and value per farm reporting work, by size of farm for selected farms in the Frankfort community, 1940.

Kinds of work	Number and size of farms by size groups in acres				
	0 - 99 28 farms	100-199 140 farms	200-299 144 farms	300-399 128 farms	400-699 130 farms
	Percent of farms reporting specified kinds of work				
Work exchanged	57	80	84	82	93
Man labor hired	25	60	59	75	83
Custom work hired	79	88	84	79	86
Man labor off the farm	50	35	39	25	77
Custom work off the farm	7	10	30	64	33
					14
					71
Kinds of work	Average number of days of work per farm reporting specified kinds of work				
	0 - 99 28 farms	100-199 140 farms	200-299 144 farms	300-399 128 farms	400-699 130 farms
Work exchanged	9	12	15	19	16
Man labor hired	6	46	57	61	83
Man labor off the farm	30	44	56	18	63
					60
Kinds of work	Average value of specified kinds of work				
	0 - 99 28 farms	100-199 140 farms	200-299 144 farms	300-399 128 farms	400-699 130 farms
Man labor hired	\$10	\$46	\$62	\$68	\$108
Custom work hired	59	73	100	104	121
Man labor off the farm	67	86	100	75	203
Custom work off the farm	42	102	199	160	225
					619

Table 22. Percent of farms reporting the specified kinds of work and the average number of days and value per farm reporting work, by type of farm for selected farms in the Frankfort community, 1940.

Kinds of work	Number and type of farms									
	Cash-grain	Dairy	General	Beef	Hog	Self-sufficing	Dairy	Part-time	Part-time	Part-time
	81 farms	39 farms	35 farms	10 farms	16 farms	3 farms	2 farms	1 farm	6 farms	6 farms
	Percent of farms reporting specified kinds of work									
Work exchanged	84	79	71	90	83	50	33			67
Man labor hired	63	54	69	80	50		50		100	50
Custom work hired	76	90	74	90	100	67	100		100	83
Man labor off the farm	32	44	23	50	33	67	50		100	33
Custom work off the farm	41	18	40	50						
	Average number of days of work per farm reporting specified kinds of work									
Work exchanged	13	15	15	20	13	12	5			13
Man labor hired	55	70	63	123	146		16		3	190
Man labor off the farm	51	36	63	17	19	19	10		120	59
	Average value of specified kinds of work									
Man labor hired	75	68	77	136	110		16		7	200
Custom work hired	120	53	87	114	65		16		84	100
Man labor off the farm	136	76	83	52	50		20		450	170
Custom work off the farm	240	72	280	74						

exchanged an average of 13 days of work. The operators of the dairy and the general farms exchanged an average of 15 days of work. Only one of the operators of the self-sufficing farms exchanged work, but two of the operators of the three part-time farms exchanged work.

In addition to the quantity of labor exchanged among the farmers in the various neighborhoods in this community, some of the farm labor had to be hired. A part of this labor was available in the farm families in the community. Quite often this available labor was unable to satisfy the demand because of the difference in the type available and that demanded, or because of the seasonality of the demand. For this reason some of the labor had to be hired from the urban sections of Frankfort and other small towns in the community and some even from outside the community. Those who came from outside the community usually lived in adjacent communities.

There were 179 laborers employed on the farm surveyed in the Frankfort community in 1940 (Table 23). Only 109 of the 177 operators on the farms surveyed employed these laborers, so a number of the operators hired more than one laborer. One hundred and fifteen of these laborers were employed for less than a month, 36 were employed for more than one month but less than three months, 18 were employed for more than three months but less than a year, and 10 were employed for a full year.

The reason for the large number being employed for a short length of time was the seasonality of the demand. The peak in the seasonal variation of hired labor for this community came in the early part of July during the combining of small grains. The quantity of labor hired then declined until September and rose in October when hired help was needed for putting up feed and shucking corn. However, this peak was lower than the one in July.

Table 23. Number of farm laborers employed for specified length of time by source of labor on 177 selected farms in the Frankfort community ^g, 1940.

Source of labor ^g	Length of time employed				
	Less than one month	One month to three months	More than three months but less than one year	One year or more	Total
Farm laborer	14	7	5	4	30
Urban day laborer	40	11	6	2	59
Farmer	27	0	1	0	28
Farm boy	22	15	2	4	43
School boy (urban or rural)	3	1	0	0	4
M.P.A. laborer	2	1	1	0	4
Retired farmer	2	1	2	0	5
Skilled worker other than farm labor	5	0	1	0	6
Total	115	36	18	10	179

^g Only 109 of 177 selected farms reported labor hired.

^g Source of labor based on previous occupation.

Many of the hired laborers were men who lived in town and worked by the day. These men were employed for only a short period, usually during the rush season for labor on the farm. A large number of the farm boys who were not needed by their fathers worked out during the summer months and usually were employed for a longer period than the urban day-laborer. During the seasonal peak of small grain harvest, some of the operators on small farms hired out to work on the larger farms but worked for only a short period. The so-called skilled workers did not have a steady job, and while they preferred work in their particular field, they did most any kind of work and were employed by the day.

Threshing and haying were the most common operations for which it was necessary to hire labor. Many of the farmers hired labor for general or unclassified farm work as well. In tabulation of the data this latter classification included persons employed for a full year and those employed during the busy summer season. It included labor hired for about three months during the summer for the preparation of the seed bed for spring-sown crops, tillage of row crops, harvest, preparation of seed bed in the fall, and other common farm tasks. Some of the farmers hired help for combining, shocking grain or feed, and husking corn. The larger farms with large corn acreages hired most of their corn husked. Most of the help necessary for putting up wood was acquired by exchanging help.

Only 25 percent of the operators of the small size group of farms had to hire labor (Table 21). They hired an average of six days of labor for \$10. As size of farm increased, there was an increase in the proportion of farmers who had to hire labor and an increase in the cost and length of time hired. Eighty-six percent of the operators on the largest size group of farms hired

an average of 122 days of labor at a cost of \$196. There was little increase in the cost of hired labor from the third-size group to the fourth, but a larger proportion of the operators on the fourth-size group of farms hired labor.

On the basis of type of farm most of the operators of beef farms had to hire labor while the operators of the self-sufficing farms did not hire any manual labor (Table 22). Eighty percent of the operators of beef farms hired an average of 123 days of labor at a cost of \$136. The average cost of hired labor was about equal on the cash-grain, dairy, and general farms, but there was some variation in the proportion of operators who hired labor and in the number of days employed. The operators of cash-grain farms hired more harvest help, which was more expensive and employed for a shorter period. The operators of dairy farms hired labor for general farm work and even for doing the farm chores. This was less expensive labor and more days were hired for the same total cost as the days hired on the cash-grain farms. One-half of the operators of the part-time farms hired an average of 190 days of labor at a cost of \$200.

The farm families in this community were able to supply part of the labor hired by farm operators. Although it was difficult to trace the exact route of labor from source to user, the quantity and kind of work done off the farm was obtained for the farms surveyed. As mentioned earlier, many of the farm boys who were not needed by their fathers worked for neighbors during the summer months. In some cases the wives and daughters of the operators worked out. Most of the operators and their sons who worked out did farm work. Some of the more common jobs besides farm work were AAA committee or field work, road work, and other public services.

One or more members of 71 farm families of the 177 selected farms did some type of work off the farm (Table 24). Of these 71 families, 52 were operators who worked out, 14 were sons of operators, three were wives, and two were daughters of operators. The 71 farm families worked out an average of 48 days and received \$101. The operators worked an average of about one month for \$80. The sons worked an average of a little more than three months for \$180. The wives worked an average of about two months for \$68. The two daughters of operators worked out an average of 195 days for \$215.

A larger proportion of the families on the small farms worked out than those on the larger farms (Table 21). Fifty percent of the families on the small size group of farms worked out an average of 30 days for \$67. Only 14 percent of the families on the large-size group of farms worked out but they received \$200 for an average of 60 days of labor. Fewer of the families on the larger farms worked out, but those who did, worked for a longer period of time and for a higher wage. The families on the small farms did mostly farm work. They worked for a shorter period and for a relatively low wage. The operators of the larger farms more often did road work, AAA work, or other public service work which paid a higher wage than the farm work.

The work done off the farm is shown by different types of farms in Table 22. Twenty-three percent of the families on the general type of farm worked out an average of 63 days for \$83. The members of the families on more of the general farms did work such as blacksmithing, yard work at the community sale and other similar jobs than did farm work. Thirty-two percent of the families on the cash-grain farms worked out an average of 51 days and received \$136. Most of the work that they did was either farm or road work. Forty-four percent of the families on the dairy farms worked out an average of 36 days

Table 24. Quantity of work and income received from specified types of work by members of the farm family on 177 selected farms in the Frankfort community, 1940.

Item	Type of work				
	All work/10	Farm work/10	Head of household/11	Other public/12	Salesmen; clerks; other/12
	Number of farms reporting labor off farm for member of farm family				
All members	71	34	6	12	7 3 11
Operator	52	25	5	11	6 1 5
Wife	3				1 2
Sons	14	9	1	1	1 1 3
Daughters	2				1 1
	Average number of days of labor per member of farm family reporting labor off farm				
All members	48	43	58	17	26 159 79
Operator	28	29	46	17	25 80 28
Wife	62				30 78
Sons	97	83	120	14	156 140 150
Daughters	195				240 150
	Average income per member of farm family reporting labor off farm				
All members	\$101	\$67	\$246	\$57	\$83 \$228 \$173
Operator	80	53	206	59	91 200 78
Wife	68				36 84
Sons	180	92	450	34	234 387
Daughters	215				250 180

/10 Does not represent the total for all types of work because an individual may have done more than one type of work.

/11 Committee members, field work, etc.

/12 Assessors, township board members, etc.

for \$70. Fewer of the families on the general farms worked out, but the families on the dairy farms did the least work off the farm of the three most common types of farms in the community. Fifty percent of the families on the beef farms worked out, but they worked for shorter periods. One-third of the families on the part-time farms did work off the farm all of which was farm work. In addition to their farming and other part-time business, they worked an average of 59 days of labor for \$170. Most of this work was performed by members of the farm family other than the operator.

From the labor data obtained on the farms surveyed, it was evident that considerable labor was done off the farm. If all the work that the operators and their sons did off the farm had been farm work, it was estimated that they could have supplied at least 20 percent of the labor hired by farmers in the community. As it was, however, the operators and their sons supplied only 15 percent of the labor hired by farmers. These data were taken in 1940, a year when hired labor was relatively easy to get. In years when labor is scarce and wages are high, the operators and their sons could supply a considerably larger proportion of the hired labor.

Farm Machine Work

The exchange of farm machinery and equipment was not so common in this community as was the exchange of manual labor. A few of the operators who owned little machinery borrowed the necessary machine from a neighbor and did manual labor for the lender as a form of repayment. The exchange machine work consisted almost entirely of hay tools such as sweep rakes, dump rakes, hay stackers, hay loaders, and hay racks. A few exchanged grain wagons and bundle

racks for harvesting of small grains, but usually the exchange work for harvesting included the use of team and rack along with the man labor.

A considerable quantity of the custom work done in the community had to be hired. The more common operations for which custom work was hired were combining of small grains and grain sorghums, threshing of small grains, and binding of sorghums. Other less common operations for which custom work was hired were binding of small grains, plowing, discing, drilling, corn tillage operations, and wood sawing. Operations for which custom work was hired on only a few farms were baling of hay, grinding of feed, ensiling of roughage, threshing of alfalfa and broom grass, and trucking.

The operators of smaller farms hired more of the different kinds of custom work than did the operators of the larger farms. The total average cost of custom work done on the small farms was less than for the larger farms, but the operators had to hire more kinds of machine work because they did not have the equipment to do it themselves.

Seventy-nine percent of the operators on the smallest size group of farms had to hire custom machine work at an average cost of \$59 (Table 21). Eighty-eight percent of the operators on the second size group of farms hired custom work at an average cost of \$73. A higher proportion of the operators on this second-size group of farms, 100-199 acres, hired custom work than any other size. At least one-half of the operators hired some combining and nearly one-half hired some threshing. More than one-fourth hired sorghums bound and one-fourth hired some cropland plowed.

Approximately 80 percent of the operators on the farms 200-699 acres in size hired custom work and the average cost was about \$100 to \$120. Only 57 percent of the operators on the largest size group of farms hired custom work,

but the average cost was \$206. Combining and threshing were about the only operations for which machine work was hired on these larger farms.

Different kinds of custom work were hired by different types of farms. A larger proportion of the operators on cash-grain farms hired their small grains combined while more of the operators on the dairy farms hired them bound and threeshed. A number of the operators on dairy farms hired corn tillage operations. Fewer of the operators on general farms hired custom work than those on the other more common types of farms. A larger proportion of the operators on the beef and dairy farms hired sorghums bound. Most of the part-time farms hired small grains combined.

More of the operators on the livestock farms had to hire custom work than those on the cash-grain or general farms. About 75 percent of the operators on the cash-grain and the general farms hired custom work, but the average cost for the former was \$120 compared to only \$87 for the latter. The average cost of custom work hired by the operators on the beef farms was almost as high as for those on the cash-grain farms. The total average cost of custom work hired by the operators of dairy farms was only \$53. That for the operators of general farms was considerably lower than it was for the operators of cash-grain farms. Eighty-three percent of the operators of part-time farms hired custom work at an average cost of \$100. Two of the three self-sufficing farmers hired some custom work, but the average cost was only \$19.

Most of the custom machine work that was hired by operators in this community was supplied by other operators in this same community. Nearly all of the custom work done by outsiders was done by those who lived in adjacent communities. It was difficult to trace the movement of custom work from the exact farmers who did the work to those that hired the work done. However, a general

relationship was obtained by comparing the size and type of farm operated by the farmer who did the custom work with the size and type of farm operated by the farmer who hired the custom work.

The major part of the custom work was done by operators on farms of more than 300 acres in size. Seven percent of the operators on the smallest size group of farms did custom work and the average return was \$42. Only 10 percent of the operators on the second-size group of farms, which included the 160 acre size, did custom work, but their average return was \$102. More than one-half of the operators on the farms 300 acres in size or larger did custom work and the average return increased with an increase in size of farm. The operators on the 300 to 399 acre farms performed more of the different kinds of custom work than any other size group. The most common custom work done by operators on all size groups was combining; plowing and binding of sorghums were almost as common.

Operators on only four of the nine types of farms did custom machine work. These four types were cash-grain, dairy, general, and beef farms. Forty-one percent of the operators of cash-grain farms did custom work and the average return was \$240 (Table 28). The most common operations were combining and plowing. Only 13 percent of the operators of dairy farms did custom work and the average return was \$72. They did no combining, but did some binding of both small grains and sorghums and some plowing. Forty percent of the operators on general farms did custom work and received an average of \$280. The operators of general farms did more custom combining than did the operators of cash-grain farms. Fifty percent of the operators on beef farms did custom work, but the average return was only \$74. A number of the larger beef farms

had threshing machines and did custom threshing.

Feed and Livestock

With the exception of a few livestock feeders, the majority of the operators in this community produced nearly all of their own feed. Most of the farmers raised enough oats to supply their own needs. The majority of the farmers raised some corn, but some had to buy corn to supply a part of their total needs. Some of the operators raised grain sorghums to supplement their needs in place of buying corn. More of the operators raised all of their roughage requirements than their grain requirements. Prairie hay was purchased by more of the operators than any of the other roughages and a few purchased alfalfa. None of the farmers bought silage, but a few bought corn and sorghum fodder and cane hay.

Operators on the smallest and the largest farms raised a smaller proportion of their feed supply in 1940 than did operators of the middle-size farms (Table 25). Operators on farms 200 to 699 acres in size produced nearly all of their livestock feed requirements. These operators raised about 85 percent of their oats and 75 percent of their corn. They raised practically all of their alfalfa, but had to buy some prairie hay.

On the basis of type of farm there was some difference as to kinds and proportions of feed raised (Table 26). The operators of cash-grain farms raised a larger proportion of their grain but less of their roughage supply. The dairy farm operators had to purchase a larger share of both grain and roughage than did the operators of the other two common types. Operators of beef, hog, and general farms had to buy a relatively large part of their corn. The total feed

Table 25. Percent of the feed supply by kind of feed and size of farm that was raised on selected farms in the Frankfort community, 1940.

Kind of feed	Number and size of farms by size groups in acres					
	0-99 128 farms	100-199 140 farms	200-299 144 farms	300-399 124 farms	400-699 139 farms	700 or more 7 farms
Grain						
Oats	39	77	83	82	88	67
Barley	48	88	86	98	86	55
Corn	58	68	81	74	72	61
Sorghum	97	98	100	100	85	100
Roughage						
Podder	94	88	90	95	95	55
Cane, millet, oat hay, etc.	91	94	82	100	100	
Silage			100	100	100	59
Prairie hay	43	57	66	82	81	50
Alfalfa hay	91	87	99	92	93	79

Table 26. Percent of the feed supply /13 by kind of feed and type of farm, that was raised on selected farms in the Frankfort community, 1940.

Kind of feed	Number and type of farms									
	Cash- grain	Dairy	General	Beef	Hog	Self- sufficing	Cash-grain	Dairy	Part- time	
	81 farms	39 farms	135 farms	10 farms	16 farms	3 farms	2 farms	1 farm	6 farms	
Grain										
Oats	80	76	80	80	66	100	100	100	100	
Barley	70	56	60	80		0		100		
Corn	82	71	59	62	39	64	100		87	
Sorghum	98	97	88	100	100	100			100	
Roughage										
Fodder	92	85	91	91	100	75	100	100	97	
Cane, millet, oat hay, etc.	88	90	97	100	100				100	
Silage	100	100	100	100						
Prairie hay	42	55	71	84	51	77	100	100	0	
Alfalfa hay	63	90	99	98	100	100			67	

/13 By feed supply is meant the total quantity bought or raised during 1940.

/14 Three part time farms are included with cash grain farms, two with general type of farms, and one with hog farms.

supply on the self-sufficing farms was not large, but the farmers bought a part of it. The part-time farmers raised nearly all of what little feed they needed.

It was difficult to trace the exact movement of the feed in the community because the largest part of the grain was handled through the local elevator. The farmers who had excess feed grain for sale sold it to the elevator and the ones who wanted to buy some bought it from the elevator. The roughage usually passed directly from the producer to the consumer. More of the oats than any of the other feed grains were exchanged in this manner. Little of the feed purchased came from outside of the community. Some was purchased from adjacent communities, but little if any was shipped in from outside sources. (This does not include commercial or prepared feeds).

The only method of determining the source of feed supply within the community was from those who sold the feed. By comparing those who sold feed with those who purchased it, the general movement of feed in the community was determined.

Some of the operators in all size groups sold corn (Table 27). Only the larger farms sold corn in significant quantities. A few farmers in nearly all the size groups sold sorghum grain, but few sold oats or barley. Only a few of the farmers sold roughage, and the quantity that they sold was small in proportion to the total feed supply on the farms surveyed. By size of farm, it was difficult to determine which farms sold the feed that was purchased by other farmers in the community. Classified on the basis of type of farm, it was more evident which farms sold feed.

More of the cash-grain farmers sold feed grains and roughage than farmers on any other type of farm (Table 28). Operators on both dairy and general farms

Table 27. (A) Percent of farms selling home-grown feed and (B) percent of home-grown feed that was sold, by size of farm for selected farms in the Frankfort community, 1940.

Feed	Number and size of farms by size groups in acres									
	5-99	100-199	200-299	300-399	400-599	700 & more				
	28 farms	40 farms	44 farms	28 farms	30 farms	7 farms				
	(A) (B)	(A) (B)	(A) (B)	(A) (B)	(A) (B)	(A) (B)				
Grain										
Oats			13	9.3	4	5.1	20	38.0		
Barley					17	5.2	33	15.2		
Corn	33	5.0	17	10.4	16	16.9	11	6.1		
Sorghum	27	2.2	30	37.2	6	16.3	23	21.1	7	9.0
Broughage										
Fodder	6	.3	3	2.6	4	1.1	5	.5		
Cane, millet, oat hay, etc.					11	17.4				
Silage										
Prairie hay			4	5.8	17	6.1				
Alfalfa hay	10	12.0	4	2.4	6	5.5	4	13.7	17	6.6

Table 28. (A) Percent of farms selling home-grown feed and (B) percent of home-grown feed that was sold, by type of farm for selected farms in the Frankfort community, 1940.

Feed	Number and type of farms													
	Cash-grains	Dairy	General	Beef	Hog	Self-sufficing	Dairy	Cash-grains	Poultry	Part-time				
	81 farms	139 farms	135 farms	10 farms	6 farms	3 farms	2 farms	1 farm	6 farms					
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Grain														
Oats	9	13.6												
Barley	18	10.0												
Corn	25	22.3	15	16.7	10	13.1	17	5.1	50	22.2	100	74.3	50	19.0
Sorghum	20	22.9	15	29.0					100	100.0			33	59.7
Roughage														
Fodder	4	1.0	4	1.9									25	8.1
Cane, millet, oat hay, etc.	7	26.8												
Silage	0	.0												
Prairie hay	12	7.9												
Alfalfa hay	6	3.6							50	27.3				

/14 Three part-time farms included with cash-grain farms, two with general type of farms, and one with hog farms.

sold some corn, but the beef farm operators sold no feed of any kind. The proportion of feed sold off the farm for all types and sizes was relatively small when compared to the total quantity raised.

It was equally as difficult to trace the movement of livestock in the community as it was to trace the feed. The number of livestock that exchanged hands directly from one farmer to another was small. The exact exchange of livestock within the community was hard to follow because most of it was sold through the community sale ring and the Frankfort Community Sale drew trade from a much larger area than just the Frankfort community. A few farmers held private auction sales, but the major part of the sales were handled at Frankfort. Most of the purebred sales were private sales. Many of the herd sires were purchased from outside the community. There was considerable community exchange in the way of breeding stock.

Many of the farmers who had only a few cattle borrowed the services of a neighbor's bull. Only 92 operators on the 177 farms surveyed owned bulls. Forty-three percent of the owners loaned their bulls out and only one charged a fee for the service. The fee charged was \$1. A number of the farmers kept a neighbor's bull in his own pasture for the services. The operators who owned bulls usually were found on the larger farms (Table 29). None of the operators of small farms owned a bull, but all of the operators on the largest farms owned one. Thus, it was evident that the smaller farm operators were dependent upon the operators of larger farms for certain breeding stock.

Many of the farmers who raised pigs bought a boar and kept him just long enough to breed his sows and then sold him. The farmer who had only one or two sows usually borrowed the services of a neighbor's boar. Thirty-one of the operators on the selected farms owned boars. Forty-two percent of these owners

Table 29. Percent of selected farms owning sires by size of farm and kind of sire, in the Frankfort community, 1940.

Kind of sire	Number and size of farms by size groups in acres						
	: 0-99 : 100-199: 200-299: 300-399: 400-699:700 & more						
	:28 farms:40 farms:44 farms:28 farms:30 farms: 7 farms						
Bull	:	0	35	52	79	87	100
Boar	:	7	10	14	36	20	43
Ram	:	0	0	7	7	20	43
Stallion and Jack	:	0	0	2	0	0	0

loaned the services of their boar to neighbors, but none charged for the service. A larger proportion of operators on the large farms owned boars than did the operators on the small farms.

There were not many sheep handled in the community. Most of the operators who had sheep kept their own rams. However, one operator, who had quite a large flock of sheep, rented the services of two rams from a neighbor for \$5.

A few of the farmers in the community had brood mares and raised colts. Only one operator stood a stallion for service and his fee was \$8. Other stallions and jacks were available for service in adjacent communities.

On the basis of type of farm, it was the more common types that owned the herd sires (Table 30). More of the operators on the beef farms owned their own bull than any other type. Approximately 60 percent of the operators of the dairy farms and 50 percent of those on both the cash-grain and the general farms owned their bulls. Only 50 percent of the hog farms owned their boars, primarily because they were hog feeding rather than hog breeding farms.

These inter-farm relationships which were measurable were important in determining the individual farmer's organization. Farmers with identical resources managed different organizations because of different relationships.

THE COMMUNITY PATTERN

In this mature agricultural community there was a variety of sizes and types of farms and organizations. This was not a community in which farms were all of a precise size, just large enough for a minimum income, and in which farms were so operated that each was a self-contained economic unit. Such was not characteristic of a mature agricultural community of the type which the Frankfort community typified.

Table 30. Percent of selected farms owning sires by type of farm and kind of sire, for selected farms in the Frankfort community, 1940.

Kind of sire	Number and type of farms									
	Cash grain	Dairy	General	Beef	Hog	Insufficient	Cash grain	Dairy	Part-time	
	18 farms	29 farms	35 farms	10 farms	6 farms	3 farms	2 farms	1 farm	6 farms	
Bull	49	59	49	90	50	0	0	0	0	
Bear	15	13	23	30	50	0	0	0	0	
Ram	5	3	23	10	0	0	0	0	0	
Stallion and Jack	1	0	0	0	0	0	0	0	0	

/14 Three part-time farms are included with cash grain farms, two with general type of farms, and one with hog farms.

The community in a sense was a separate segment of society; on the other hand, it was cooperative in nature and but a part of the universe. It was sufficiently independent as a community for the purpose of this study and was considered to be a typical, mature, agricultural community.

The range in size of farms in this community was from a farm less than 10 acres to one which was more than 2,000 acres in size. There were 655 farms within the outlined community and 177 were surveyed. The modal size farm was 160 acres and approximately 75 percent of all farms were less than 300 acres in size. Forty-two percent of the farms were cash-grain farms, 25 percent were dairy farms, and 20 percent were general farms. The other 13 percent were, for the most part, animal speciality, although a few were self-sufficing farms. Thirty-eight percent of the farms in the community were operated by the owners, 19 percent were operated by part-owners, and 43 percent were operated by tenants.

Most of the operators of the small farms were full-owners and as size of farm increased the percent of full-owners decreased. The opposite was true for the part-owner operators. There were only a few part-owner operators on the small farms, but as size of farm increased, the percent of the operators that were part-owners increased. More than 55 percent of the smallest size farms were operated by full-owners and more than 65 percent of the largest size farms were operated by part-owners. The percentage of operators that were tenants was low on the small farms and increased with the size of farm. Fifty percent of the operators on the 200 to 299-acre farms were tenants and the percentage remained about the same as size increased to 699 acres. For the larger farms the percentage of operators who were tenants decreased.

Seventeen percent of the farms in the Frankfort community were less than 100 acres in size. Thirty-seven percent of the farms were from 100 to 199 acres

in size. These small farms--particularly the first size group--were owned by the operator and nearly half of them were dairy farms. They were dairy farms because (a) they had a small volume of business, (b) home-used products were included as a part of the gross farm income and dairy products made up a large part of home-used products, (c) the cattle kept were milked, not because they were dairy cows, but because they gave milk and any cattle sales were credited to the dairy enterprise. Therefore, the percent of gross returns from the dairy enterprise was high enough to classify it as a dairy farm. There were fewer dairy farms in the second size group, and more of them were cash-grain farms. Only 14 of the first size group were classified as general farms while more than 20 percent of the second size group were general farms.

As size of farm increased, approximately 20 percent were general farms, at least 50 percent were cash-grain farms, and the remainder were beef farms. The medium-sized farms were operated mostly by renters. Those who had little pasture usually raised considerable wheat and had little livestock; therefore, they were cash-grain farms. Those who rented farms with considerable pasture usually practiced general farming. The full-owner operator in each size group had more livestock than the other tenure classes and some operated dairy and livestock speciality farms. The dairy farms in the medium to large-size group of farms were operated rather intensively. They were dairy farms because they handled a dairy type of cow and specialized in dairy production. A few full-owners operated cash-grain and general farms, but more of the dairy, beef, and hog farms were operated by owners.

The largest size group of farms were operated for the most part by part-owners. They owned a small unit on which their farmstead was located and rented additional land. These part-owner operators on the larger, bottomland farms,

rented additional cropland on which they raised wheat and were classified as cash-grain farms. The part-owners in the southern part of the community, adjacent to the Flint Hill region, rented nearly all pasture and operated beef cattle farms. The type of owned farm in the larger size groups was determined quite largely by the proportion of crop land and pasture. Those with a large part of their land under cultivation usually were cash-grain farms and those with more pasture were either general or beef farms. Before the years of drouth and of depressed livestock prices, a number of the cash-grain and general farms were livestock speciality farms. These farms had a larger acreage in corn and feed crops instead of wheat and fed livestock for the market. A number of the larger bottomland farms had a large part of the crop land in corn instead of wheat and those that fed the corn were classified as livestock speciality farms while those that sold the corn were cash-grain farms.

The system of farming in the Frankfort community was relatively dynamic in that the operators changed their farming operations to meet economic and climatic conditions. By occupying the transition zone between two crop speciality regions, the farm enterprises were changed in importance from time to time to conform with the combination of enterprises that had the greatest comparative advantage under the prevailing economic conditions.

The type of operator and his relationships with other operators in the community were of particular importance to type of farm operated and the relative success of the farm business. This was a mature agricultural community free of non-agricultural pursuits and the resulting pattern was a natural development.

The small farms were operated by four general types of operators. One was the young man who had little equipment or livestock to start with and depended

a great deal upon help from either parents or neighbors in the use of material or equipment. He was just starting out, renting the farm, and being either unwilling or unable to obtain credit to purchase equipment and livestock, was trying to get along on what he had and was not able to farm a large or even medium-sized unit. He exchanged considerable work with neighbors, but in addition he had to hire custom work. The quantity he hired was small, but he had to hire many of the different kinds because he had so little equipment himself. In addition, he worked out for neighbors and was dependant upon them for the services of his breeding stock. Although some of these operators had little livestock, they raised insufficient feed and bought oats, corn, and roughage. Lack of experience and equipment made it an uneconomical unit from the "long-time" standpoint.

A second type of operator on the small farms was the farmer who lacked both mental and physical resources to manage a larger farm. Such farmers were trying to get along on what make-shift equipment and livestock they had and never experienced more than minimum success. They operated in much the same manner as did the young man who was just starting out. However, instead of saving and trying to get ahead as the younger man was doing, such a farmer was living by a "hand-to-mouth existence"—that is, spending all as he went along. A few of this type of operator owned their own farms through inheritance rather than by independent acquisition.

A third type of operator was the older farmer who was in the process of retiring. When they were younger, these farmers had operated larger units but with increasing age they reduced their unit to a size they could handle themselves. These operators usually had quite a few chickens, milked enough cows for home use and sometimes more, had a good garden, and were in a sense operating a self-sufficing unit. These retiring farmers usually had enough equipment

and exchanged little labor or equipment. Quite often they hired a laborer to operate their own equipment so they had to hire little custom work. It was the consensus of several of these operators that they were living better, working less, and enjoying life more than when they had tried to farm a larger unit. These operators owned their own farms and most of them were living on the returns of their past savings—that is, they were making operating expenses and had a relatively high standard of living, but they were not making enough to provide an adequate return on their investment.

The fourth type of operator on small farms was the part-time farmer. Most of these operators found that they could not make as much as they wanted to make on their small units so had taken on another job to help meet the cost of living. The relationships on these farms varied considerably from the others. Most of them had to hire some man labor and nearly all the custom work done. A few owned nearly all of the necessary equipment so just had to hire man labor to operate it. Few of these part-time farmers owned livestock, and many were cash-grain farms. As a whole, this group was less dependent upon community cooperation than any of the other small farms. The part-time farm family worked off the farm in addition to their part-time business, but it usually was done by some member of the family other than the operator.

There were other types of operators than those mentioned, but those mentioned were the more general ones on the small farms. There were few highly intensified farms with small acreages. Therefore, specialized operators on small farms was not a general type.

The types of operators and their organizations on the middle-size farms were less distinct than those for the small farms. Fewer of the farmers operated dairy farms, but those who did operated a more specialized dairy enterprise.

As size of farm increased, the percent of land in crops decreased. However, a relatively large proportion of the group of middle-size farms were cash-grain farms, some were general farms and a few were beef farms. A larger proportion of the operators on these middle size farms were renters, especially those who operated cash-grain farms. The operators of general farms handled more beef cattle, while those who operated cash-grain farms handled more dairy cows. The hog farmers were on the middle size group of farms. The operators on cash-grain farms had more invested in machinery while those on dairy and beef farms had more invested in livestock. A larger proportion of the farm income on these farms came from crop sales, most of which was wheat, and were cash-grain farms.

The cash-grain farmers, most of whom operated either middle or large-size farms, received the highest returns on their average investment of all of the operators on the other types of farms. More of the operators on the middle-size farms exchanged work and exchanged more days than the operators of smaller farms. In addition, they hired more labor. The operators of dairy farms hired cheaper labor but for longer periods of time so that the total cost was about equal to that hired by general and cash-grain farms. Harvest labor was the highest price labor. The average cost of labor hired for the middle-size farms was about \$75. They hired fewer of the different kinds of custom machine work but the average cost was higher than for the small farms. The general farms hired the least amount of custom work while the dairy farms hired more of the different types of custom work. A relatively large proportion of the operators on the middle size cash-grain farms hired their small grains harvested. The operators of dairy and of beef farms hired more custom work for harvesting their feed crops. A number of the cash-grain farmers owned harvesting equipment

and did custom harvesting for other cash-grain and general farmers. Thus there seemed to be more exchanging of work by operators of the middle size farms but less actual dependence upon neighborhood cooperation in the use of equipment and herd sires than for the operators of small farms.

The larger farms were usually one of three types, cash-grain, general, or beef. Most of them were operated by part-owners. The operators of cash-grain farms usually lived on the more fertile bottomland. They had few livestock and most of their cropland was in wheat. They hired labor during the seasonal peak at harvest time. These operators usually owned a relatively large amount of harvesting equipment for small grains and did considerable custom work.

More of the operators of general farms lived on the upland farms and had about one-half of their farms in pasture. They handled some livestock and raised some cash-grain crops. Most of the sheep in the community were found on the large general farms. Some of the operators hired considerable custom work while others had their own equipment and did custom work. These farmers hired considerable labor and exchanged more days of work than did the operators of cash-grain farms.

The operators of beef farms lived in the pasture-land sections of this community. The largest part of their farms was in pasture and they used their cropland for feed crops. They handled quite large herds of cattle and their bulls were used as sires by many of the smaller farm operators. The beef farm operators exchanged considerable work and in addition they hired considerable manual labor; many hired a laborer for a full year. None of the beef farmers sold feed and many had to buy some feed.

Fewer of the operators of the middle and large size farms did work off

the farm than those on the small farms. However, their average return was higher because they did different types of work and for longer periods of time. The operators of the small farms did mostly farm work for short periods of time while the larger farm operators did road work, AAA field or committee work, or other public service work and received a higher wage. The larger farm operators did much of the custom work hired by the operators of the smaller farms. They provided employment for the small farm operator and his family.

The material obtained for this report by the sample survey was considered to be indicative of the entire community. Therefore, the following statements concerning agricultural planning and its relation to all farms in the community pattern were made.

The Frankfort community, a mature agricultural community, was not made up of a number of equal size farms identically organized for maximum utilization of resources. The exact replica of the average farm in this community was not common. The farm plan adopted by agricultural programs served as a general plan but needed alterations to fit all farms in the community.

The farmer's organization was the one that he could manage the best and the one that was most nearly fitted to his individual needs. His activities were concerned first with his immediate existence and this governed his organization accordingly. This community was made up of a variety of sizes and types of farms and types of farmers. The distribution of sizes and types was a natural result and common to most communities. Each farmer occupied his particular niche in society and became a part of the whole mature community.

There were several types of operators who farmed small units because it was the most economical unit for them to farm. The young, inexperienced

operator who had little paternal or financial assistance started on a small unit because his chances for losses were less and his chances to succeed greater because he was starting "from the ground up." These operators were benefitted materially by the inter-farm relationships that existed in the community. Another type of operator on the smaller farms was the older operator who was in the process of retiring. These operators preferred to operate a small unit on which they could do most of their own work even though they were able to manage a much larger unit with the aid of hired help. They derived a great deal of satisfaction from operating their small unit at their leisure. A third type of operator was the one whose individual resources were such that he never acquired more than minimum success. He usually managed to get along on his small unit and was unable to manage a larger one. This type of operator also depended a great deal upon community and neighborhood cooperation. He was not capable of organizing his unit for maximum utilization of the farm resources for society and in all probability would have done better in some other vocation. A fourth type of operator was the part-time farmer who adapted his farming to fit in with his other business regardless of what organization would provide maximum benefits to society.

The middle size group of farms were organized in a variety of ways. A portion of these farmers had more than enough equipment to farm their unit economically. They were able to get along because they hired out their equipment on almost an equal proportion of farms that had insufficient equipment. These latter operators got along better by hiring some of the farm machine work done because they lacked the ability to properly care for the machinery and did not have sufficient land for its maximum utilization. The former operators were able to do better by hiring out their equipment for a part of the time

than by farming large enough units themselves for most efficient utilization of their equipment.

Some of the operators on the middle size farms specialized in a particular enterprise. A few operated specialized dairy farms, and a few handled purebred beef cattle. In addition to the few specialized farms there were other types of organizations. Few were organized in a manner comparable to the average farm plan even though they were near the size of the average farm. Some farmers grew cash-grain crops because they did not have the ability to handle livestock. Other farm units lacked sufficient pasture and equipment to accommodate livestock. Operators on these farms usually handled enterprises that were suited to their farms and produced the highest returns under the prevailing economic conditions.

There were few large farms from an acreage standpoint but they fitted into the community pattern. Some types of farms, such as beef farms, needed more acreage for the same volume of business as other types of farms. To operate efficiently, they needed a larger volume of business than could be acquired on a small acreage. In addition, some operators did better on larger farms. Because they possessed the ability to manage larger units, they acquired additional land for their unit. Some inherited their farms while others owned a part of it and rented the rest. Some had considerable equipment and needed a large unit for most efficient utilization.

The larger farms had a definite place in the community. They performed a few of the more important mechanical operations for many of the smaller farm operators. They provided the services of herd sires that the smaller farmers could not afford. They provided a place for the operator of the small farm and his family to work during their slack seasons and other times.

The data obtained for this study did not indicate that there was necessarily a need for the variety of sizes and types of farms. But it did prove that in a mature agricultural community many varieties of farm organizations existed, and that they were not all full-time, farm-family businesses organized for maximum utilization of resources. Even though the community was old enough for the operators to have learned what the most economical size of unit was and what combination of enterprises provided the highest returns, few operated this kind of farm. Each operated his farm according to his ability and needs under the prevailing conditions. The farm plan developed for the average farm had little use unless capable of being modified to meet actual farm conditions for all farms in the community pattern.

SUMMARY

The purpose of this study was to determine the relationship between the resources of a community and the resulting community pattern.

No previous work of this kind, apparently, had been done in Kansas.

The study was based on sample farm data obtained from farm operators personally interviewed. One hundred and seventy-seven farmers were interviewed. Detailed farm records were obtained from 96 operators and simplified records were obtained from 81 operators. Sufficient information was obtained on the detailed records to make an income analysis in addition to the inter-farm relationship data. Enough information was obtained on the simplified records to determine type of farm but not enough to make an income summary in addition to the inter-farm relationship data.

In the Frankfort community, there were 655 farms as outlined by tradespeople

in Frankfort. Seventy-seven percent of the farms were less than 300 acres in size and the modal size of farm was 160 acres.

There were nine types of farms but only three common types. The three most common types in order of importance were cash-grain, dairy, and general. Forty-two percent were cash-grain farms, 25 percent were dairy, and 20 percent were general farms. Other types were beef, hog, self-sufficing, dairy-cash-grain, poultry, and part-time farms.

In 1940, approximately 42 percent of the operators in this community were tenants, which was three percent less than for the state of Kansas. Twenty-four percent were part-owners and 34 percent were full-owners. Fifty-five percent of the operators of small farms were full-owners but as size of farms increased, the proportion of operators that were full-owners decreased. The opposite was true for the part-owners. Few of the operators of small farms were part-owners but as size of farms increased the proportion of operators that were part owners increased to 65 percent for the largest farms. At least 50 percent of the operators of middle-size farms were tenants.

Farms less than 100 acres in size returned an average of only 2.3 percent for the farm capital invested. Farms of more than 100 acres returned an average of at least five percent and as size of farm increased the percentage return on farm capital increased. Cash grain farms received the highest return for the different types of farms, averaging 10.8 percent. The self-sufficing farms did not make enough to pay for operator's labor or interest on investment. Part-time farms had an average return of 9.8 percent on their farm business alone. Tenant farms returned 10.7 percent, part-owned farms returned 9.6 percent, and full-owned farms returned an average of 6.4 percent of the farm capital invested.

A large proportion of the small farms were dairy farms. These operators called their cattle dairy cattle because they milked them and not because they belonged to a dairy breed. Thus the total receipts from cattle sales, dairy products sales, and home-used dairy products made up a large part of the gross income. This made the farm a dairy type not because of size or because of an intensified dairy enterprise but because of the small volume of business. More of the middle-size farms were cash-grain and general farms. The large farms were either cash-grain, general, or beef farms.

The smaller farms were operated by a variety of owners, the more common ones including those who were in the process of retiring, the young inexperienced farmers, those who lacked the human and physical resources for any more than a minimum of success, and the part-time farmers. These farms hired less manual labor but a wider variety of custom work than the larger farms. They exchanged considerable work and in some cases exchanged labor for the use of equipment. Many of the operators and their sons did farm work on other farms. The operators were dependent upon farms with more livestock for herd sire services.

The operators of the middle size farms exchanged and hired more labor than the smaller farms. Some of the operators did custom work for other operators in the middle and smaller size groups. These operators did more of the different types of custom work than did the operators of larger farms.

The larger farms were of three general types, cash-grain, general, and beef. The cash-grain farms received most of their income from wheat and did considerable custom combining for the smaller farms. These larger farm operators hired labor for longer periods. Many of the beef farmers hired labor for a full year. The beef farmers also exchanged considerable work but operators

on the other types of large farms exchanged less than the operators on the middle size farms.

Most of the feed was raised on the farms where it was needed although the livestock farmers did have to buy some feed. Most of the grain was sold to the elevator but the roughage feed passed directly from producer to consumer. Most of the livestock sales were made through the community sale ring at Frankfort.

The community pattern was dependent upon each individual operator's organization. The individual's organization was dependent upon several main factors: The available resources in the community, the individual's relationships with other farms and farmers in the community, and his own individual needs--especially those for his immediate existence. Therefore, the variation in farms was as wide as the variation in the factors. The resulting community pattern was an interlocking of heterogeneous units rather than a block of homogeneous squares. For a farm plan to operate successfully, it must be capable of being modified to apply to all farms in the community pattern.

ACKNOWLEDGMENTS

Appreciation is expressed to Dr. J. A. Hodges, major instructor, and to Dr. W. E. Grimes, Head of the Department, for their assistance in planning and conducting this study, and for their criticisms and aid in the preparation of this manuscript; to Mr. H. L. Stewart and Mr. C. P. Butler, members in the Bureau of Agricultural Economics of the United States Department of Agriculture, for their assistance in the preparation of the survey schedules and collection of the data; and to other members of the department who have helped in various ways. This study was based on material of a cooperative research project of the Kansas Agricultural Experiment Station and the Bureau of Agricultural Economics.

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